A listing of the claims, in accord with 37 CFR §1.121, is provided. The listing of claims replaces all prior such listings of claims. Claims 23, 24, 26, 50-52 and 54-57 are amended.

23. (Currently Amended) A method, comprising:

introducing an artificial chromosome into a mammalian nuclear donor cell; and

transferring the nucleus of the nuclear donor cell into an enucleated recipient cell of the same species.

24. (Currently Amended) The method of claim 23, further comprising transferring the recipient cell into a non-human mammalian maternal host animal of the same species as the recipient cell.

25. (Previously Presented) The method of claim 24, wherein the recipient cell has been activated.

26. (Currently amended) The method of claim 24, further comprising permitting the transferred recipient cell to develop into [[an]] a non-human mammalian animal in the host.

27. (Previously Presented) The method of claim 23, wherein the enucleated recipient cell is an oöcyte.

28. (Previously Presented) The method of claim 23, wherein the nucleus of the nuclear donor cell is transferred into the recipient cell by fusing the donor and recipient cells.

29. (Previously Presented) The method of claim 23, wherein the nucleus of the nuclear donor cell is transferred into the recipient cell by microinjection.

30. (Previously Presented) The method of claim 24, wherein the host is selected from among a cow, goat, mouse, camel, ox, pig and sheep.

31. (Previously Presented) The method of claim 26, wherein the artificial chromosome comprises heterologous DNA encoding a gene product.

32. (Previously Presented) The method of claim 31, wherein the resulting animal expresses the gene product in its milk.

33. (Previously Presented) The method of claim 23, wherein the artificial chromosome is a minichromosome or a satellite artificial chromosome.

34. (Previously Presented) The method of claim 23, wherein the artificial chromosome is a satellite artificial chromosome.

35. (Previously Presented) The method of claim 34, wherein the artificial chromosome is a satellite artificial chromosome produced by a method comprising:

introducing nucleic acid comprising a selectable marker into a cell;

growing the cell under conditions that selectively permit the growth of cells containing the nucleic acid; and

selecting a cell that comprises a satellite artificial chromosome.

36. (Previously Presented) The method of claim 23, wherein the artificial chromosome is a minichromosome.

37. (Previously Presented) The method of claim 36, wherein the artificial chromosome is a minichromosome produced by a method comprising:

introducing nucleic acid comprising a selectable marker into a cell:

growing the cell under conditions that selectively permit the growth of cells containing the nucleic acid; and

selecting a cell that comprises a minichromosome comprising a neocentromere.

38. (Previously Presented) The method of claim 24, wherein the artificial chromosome is a satellite artificial chromosome.

39. (Previously Presented) The method of claim 25, wherein the artificial chromosome is a satellite artificial chromosome.

40. (Previously Presented) The method of claim 26, wherein the artificial chromosome is a satellite artificial chromosome.

41. (Previously Presented) The method of claim 27, wherein the artificial chromosome is a satellite artificial chromosome.

42. (Previously Presented) The method of claim 23, wherein the artificial chromosome is introduced into the nuclear donor cell by a method selected from among direct uptake, microinjection, cell fusion, microcell fusion, electroporation, electrofusion, projectile bombardment, calcium phosphate precipitation and lipid-mediated transfer.

43. (Previously Presented) The method of claim 34, wherein the artificial chromosome is introduced into the nuclear donor cell by a method selected from among direct uptake, microinjection, cell fusion, microcell fusion, electroporation, electrofusion, projectile bombardment, calcium phosphate precipitation and lipid-mediated transfer.

44. (Previously Presented) The method of claim 34, wherein the artificial chromosome is isolated prior to introducing it.

45. (Previously Presented) The method of claim 23, further comprising culturing the nuclear donor cell comprising the artificial chromosome prior to transfer of the nucleus into the recipient cell.

46. (Previously Presented) The method of claim 45, wherein the culturing step comprises screening for one or more markers contained within the artificial chromosome.

47. (Previously Presented) The method of claim 23, further comprising culturing the recipient cell after transfer of the nuclear donor cell nucleus into the recipient cell.

48. (Previously Presented) The method of claim 47, wherein the culturing step comprises screening for one or more genetic markers.

49. (Previously Presented) The method of claim 48, wherein the culturing step comprises screening for one or more markers contained within the artificial chromosome.

50. (Currently Amended) The method of claim 23, further comprising:

permitting the recipient cell comprising the nuclear transfer nucleus to develop as [[an]] a non-human embryo *in vitro* [[of]] or *in vivo*;

obtaining a nuclear donor cell from the embryo, wherein the cell comprises an artificial chromosome; and

transferring a nucleus from the embryo nuclear donor cell into a second enucleated mammalian recipient cell.

51. (Currently Amended) The method of claim 50, further comprising transferring the second enucleated recipient cell into a maternal host animal of the same species as the second enucleated recipient cell.

52. (Previously Presented) The method of claim 51, further comprising permitting the transferred second recipient cell to develop into [[an]] a non-human animal in the host.

53. (Previously Presented) The method of claim 24, further comprising permitting the transferred recipient cell to develop into a fetus in the host.

54. (Currently Amended) The method of claim 53, further comprising:

obtaining a nuclear donor cell from the fetus wherein the cell comprises an artificial chromosome; and

transferring a nucleus from the fetal nuclear donor cell into a second enucleated mammalian recipient cell.

55. (Currently Amended) The method of claim 54, further comprising transferring the second enucleated recipient cell into a non-human maternal host animal of the same species as the second enucleated recipient cell.

56. (Currently Amended) The method of claim 55, further comprising permitting the transferred second recipient cell to develop into [[an animal]] a non-human mammal in the host.

57. (Currently Amended) The method of claim 31, wherein the heterologous DNA encodes a gene product that serves to immunologically humanize an organ of the animal.

58. (Previously Presented) The method of claim 31, wherein the heterologous DNA encodes one or more human surface antigens.

59. (Previously Presented) The method of claim 57, wherein the animal is a pig.

60. (Previously Presented) The method of claim 31, wherein the heterologous DNA encodes antisense RNA within the animal.